

DECEMBER 2015

# SPACE LAUNCH SYSTEM HIGHLIGHTS

## Going Up: Bolden Sees Progress on SLS Test Stand

With Test Stand 4693 under construction in the background, NASA Administrator Charles Bolden outlines progress on NASA's journey to Mars for media and employees Dec. 14 at Marshall Space Flight Center in Huntsville, Alabama. When construction is completed, hydraulic cylinders at Test Stand 4693 will push, pull and bend the liquid hydrogen tank of the SLS's massive core stage to subject the tank and hardware to similar loads and stresses they will endure during launch. See [more pictures](#) from the administrator's visit. (NASA)



# Operation Insulation: NASA Marshall Prepares for SLS Foam Testing

It's "Operation Insulation" for SLS at the Marshall Space Flight Center. Steve Bray, right, a Bevilacqua Research Corp. employee supporting Marshall's Engineering Directorate, is part of a team of engineers and technicians that is preparing panels that will be used for testing foam insulation materials for SLS. Different types of polyurethane-based foam will be used to protect and insulate the SLS core stage and launch vehicle stage adapter (LVSA), which connects the **core stage** to the interim cryogenic propulsion stage (ICPS). The **ICPS** will give the Orion spacecraft the big push needed to fly beyond the moon before the spacecraft returns to Earth. Approximately 180 panels have been prepped for various tests, which are being conducted to qualify the insulation for the challenging environments SLS will experience before and during flight. (NASA/MSFC)



## Faces of SLS



Meet **Jeff LaDelfa**.  
(NASA/MSFC)

### #JOURNEYTOMARS

#### Jeff LaDelfa

A Buffalo Bills fan is in the game to build the nation's next great rocket, the Space Launch System. Meet Jeff LaDelfa, project engineer at Moog Inc.

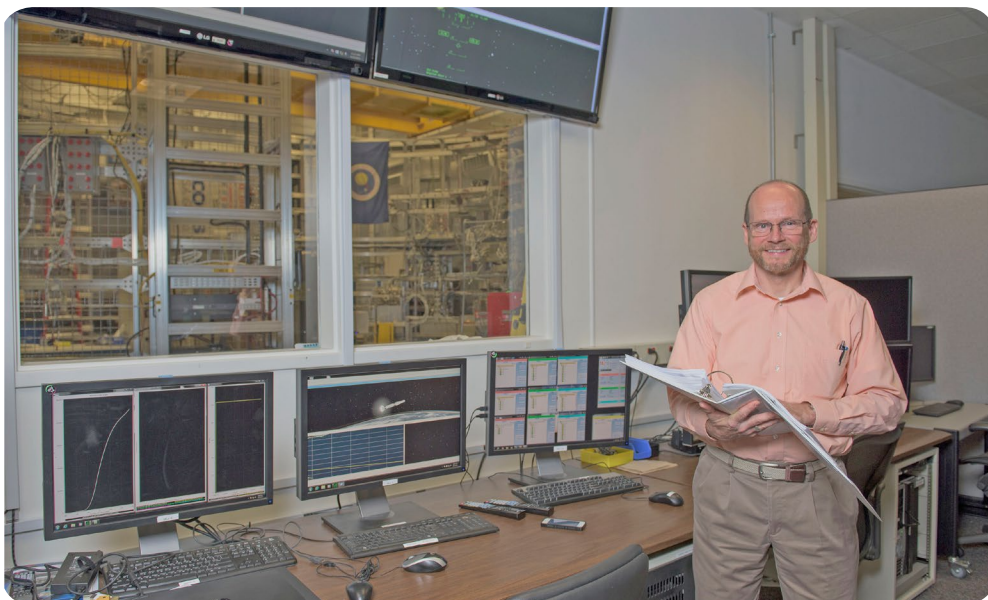
## FACES OF SLS



Moog Inc.



# NASA Marshall's John Hanson Wins AIAA Award for Work on SLS Rocket



John Hanson is keeping his eyes on the prize of helping build the most powerful rocket in history, NASA's Space Launch System, for the journey to Mars and other destinations in deep space. And for those efforts, he's getting a prestigious prize of his own from the world's largest aerospace professional society. Hanson, alternate lead systems engineer in the Spacecraft and Vehicle Systems Department of the Engineering Directorate at the Marshall Space Flight Center, **has been honored** by the American Institute of Aeronautics and Astronautics (AIAA) with the 2016 de Florez Award for Flight Simulation. (NASA/MSFC)

## Be an Astronaut!

Let SLS be your ride! NASA is looking for the best candidates to work in the best job on or off the planet. The astronaut candidate application is live and **accepting submissions** through Feb. 18. More information also is available on the SLS blog, **Rocketology**. (NASA)



# Spaceflight Partners: JBS Solutions

*EDITOR'S NOTE: Every month, SLS Highlights turns the spotlight on one of the many industry partners helping to create the largest rocket ever built for human space exploration. In this issue, we profile JBS Solutions of Huntsville, Alabama.*

If you've ever had to move the contents of your house across the country, or even just to the other side of town, you know how complicated things can get. The logistics of getting everything coordinated and in one piece from your point of origin to your destination can be overwhelming.

Now imagine trying to coordinate the move of a nearly 5-ton piece of the Space Launch System from NASA's Marshall Space Flight Center in Huntsville, Alabama, to Kennedy Space Center in Florida. JBS Solutions has to think of this kind of challenge every day.

JBS Solutions is a **HUBZone**-certified and Economically Disadvantaged Woman Owned Small Business in Huntsville. The company provides logistics and transportation planning support for the launch vehicle stage adapter (LVSA) as part of the SLS Program configuration for the Marshall Center.

LVSA is a critical element of the SLS. It will connect the rocket's 27.5-foot diameter core stage and 16.4-foot-diameter interim cryogenic propulsion stage (ICPS). In addition to providing structural support for launch and separation loads, LVSA will also protect the delicate electrical devices in the propulsion systems from the extreme conditions encountered in the challenging launch environment.

The sheer size and weight of the LVSA make transporting it to Kennedy an especially complex task. As the prime contractor for LVSA, Teledyne Brown Engineering of Huntsville knew it needed the kind of expertise JBS Solutions could offer to tackle the unique transportation logistics. The company's experienced engineers must consider an extremely long list of variables. For example, the completed hardware will be too wide and too tall to travel on a



JBS Solutions provides logistics and transportation planning support for the launch vehicle stage adapter (LVSA) as part of the SLS Program configuration for the Marshall Center. (NASA/MSFC)

public highway, so it will have to travel from Marshall to Kennedy via a commercial barge.

JBS engineers must account for conditions such as water height, bridge height, waterway traffic and weather — all while ensuring the valuable hardware arrives safely, on time and undamaged. To do this and handle the many other critical details, JBS Solutions is developing a comprehensive end-to-end plan that provides highly tailored logistics and transportation solutions for this one-of-kind challenge.

In addition to its support for the LVSA project, JBS Solutions is developing new practices for supply chain management using the SLS Program as a benchmarking effort. JBS is establishing an efficient supply chain management structure and ensuring availability and readiness of critical elements of the SLS.

By defining key performance indicators and mapping state-of-the-art enterprise supply chain management practices, JBS is empowering NASA to monitor, evaluate and enforce schedule performance in the supply chain and providing a helping hand to literally move NASA's space exploration goals forward.



# On the Road...



On Dec. 9, SLS toured Weldall Manufacturing Inc. in Waukesha, Wisconsin. Weldall is a key partner in helping build the rocket's core stage. (NASA/MSFC)



Former NASA astronaut Don Thomas inspects rubber that will be used in cork-rubber materials for SLS booster insulation Dec. 10 at Amorim Cork Composites in Trevor, Wisconsin. (NASA/MSFC)



The astronaut is ready to climb aboard the SLS on Dec. 11 at the Rocket City Marathon Expo in Huntsville, Alabama. (NASA/MSFC)

Follow SLS on:



## SLS on Deck:

- Confidence welding on Vertical Assembly Center at Michoud
- RS-25 flight engine test
- Flight interim cryogenic propulsion stage (ICPS) liquid hydrogen tank production complete